Chapter III

TRANSPORTATION

CHAPTER III - TRANSPORTATION

Rockville Pike is a major transportation corridor for Montgomery County. Local commercial, residential, and commuter traffic all use the Pike.

At present, the Pike is primarily an auto-oriented environment, though there are opportunities for increased public transit use and pedestrian activity. This Plan seeks to enhance the transportation capacity of this important corridor by improving the existing roadway network and encouraging the use of alternate means of transportation for local use of the Pike. The transportation element is presented in three sections. First, the EXISTING CONDITIONS section discusses the Pike's current traffic capacity and presents current and programmed transportation improvements. The second section discusses FUTURE CONDITIONS and the third section presents short- and long-range transportation RECOMMENDATIONS for the Rockville Pike Corridor.

EXISTING CONDITIONS

Highway Network

Anyone using the Pike on a regular basis knows that traffic congestion is a major concern. Insufficient capacity at key intersections in the corridor causes the surrounding highway network to function inefficiently. Intersections at Edmonston Drive, Veirs Mill Road and Montrose Road are particular problems. Capacity is further reduced by inadequate left- and right-turn lanes throughout the Corridor. Driveways along the Pike are generally too closely spaced, poorly signed and often substandard in design. Driveways placed near intersections further complicate traffic flow problems.

Map 2 illustrates the current levels of service on several of the Pike's intersections. These levels of service suggest that the Pike's capacity to support increased traffic is severely limited. Nevertheless, average daily traffic volumes are expected to increase within the next few years by approximately 10 percent. This projected increase is relatively modest because the widening of I-270 and the increased usage of Metrorail are balanced against continued development in this section of the Metropolitan Washington area. An overall reduction in through traffic is predicted due to the widening of I-270, but an increase in local traffic is expected.

To alleviate some of the anticipated congestion, several roadway improvements have been completed or are currently under way. These improvements are a direct result of the JHK study of the Pike's carrying capacity completed in 1985. These improvements include:

Completed

1. First Street Extension: connected the Veirs Mill Road/Norbeck Road intersection with Rockville Pike; new Rockville Pike intersection; eliminated the left-turn phase for westbound Edmonston Drive at Route 355.

2. Twinbrook/Chapman Intersection: revised to existing intersection lane configuration and signal phasing.

3. Twinbrook/Route 355: left-turn prohibition on westbound Twinbrook at Route 355; eliminated existing permissible left-turn from westbound Twinbrook Parkway to Route 355 to match eastbound left-turn restriction.

4. East Jefferson Street Widening: widened to four lanes from Rollins Avenue intersection to city limits then to five lanes to Montrose Road intersection; upgraded signal at East Jefferson and Rollins Avenue.

5. Halpine/Route 355 Intersection: marked separate westbound right-turn lane onto Route 355.

Programmed

1. Route 355/Edmonston Intersection: add northbound right-turn lane; repair or replace non-functional traffic signal detectors; and lengthen northbound left-turn bay on Rockville Pike (anticipated completion in several stages through 1988).

2. Richard Montgomery/Route 355 Intersection: add separate eastbound right-turn lane on Richard Montgomery Drive and increase corner radius (anticipated completion in 1988).

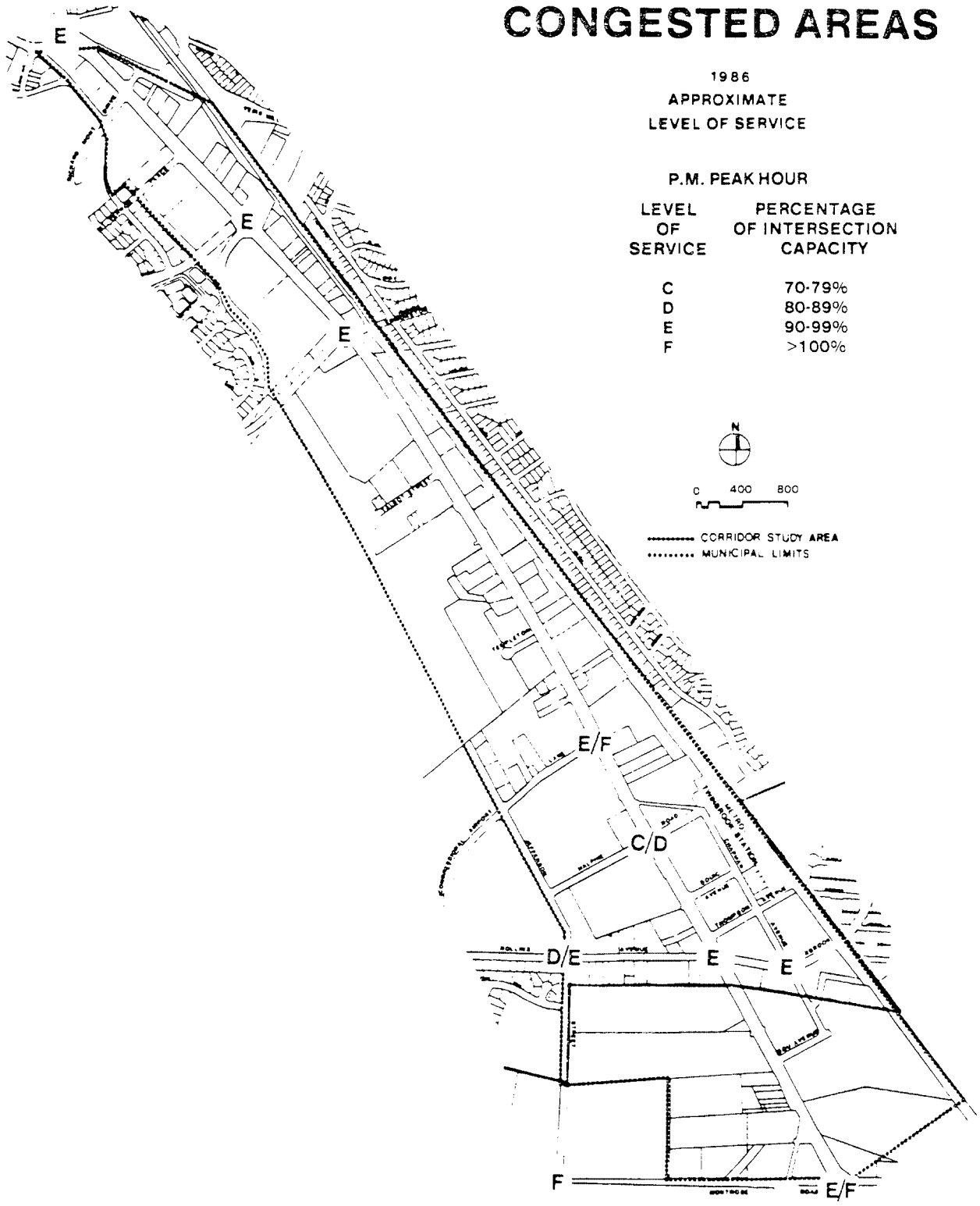
MAP 2

CONGESTED AREAS

1986
APPROXIMATE
LEVEL OF SERVICE

P.M. PEAK HOUR

LEVEL OF SERVICE	PERCENTAGE OF INTERSECTION CAPACITY
C	70-79%
D	80-89%
E	90-99%
F	>100%



3. Route 355/Veirs Mill Road Intersection: add one northbound and one southbound lane through the intersection (anticipated completion 1989).

4. Route 355/First Street Intersection: add one northbound exclusive right-turn lane (anticipated completion 1989).

5. Ritchie Parkway: construct four through lanes to connect Route 355 with Seven Locks Road west of I-270; to intersect with Route 355 at First Street intersection; revise Edmonston/Route 355 intersection eastbound approach to permit right turn only onto Route 355 (anticipated completion in 1989). Upon completion of Ritchie Parkway, the temporary connection with old Ritchie Parkway will be terminated. Access to old Ritchie Parkway will be achieved via the Fleet Street extension.

6. Halpine Avenue Closure: rerouting of Halpine Avenue to feed service drive network rather than Route 355 (design underway).

7. I-270 Widening: widen I-270 from six to twelve lanes and add an interchange at Falls Road (anticipated completion 1990).

8 Congressional Lane/Rockville Pike Intersection Improvements: the addition of a right-turn bay on southbound Rockville Pike and prohibition of left turns into Congressional Plaza. If necessary, the driveway on Congressional Lane into Congressional Plaza may be closed at a later date.

These completed and programmed improvements will provide some relief to the congestion on the Pike to accommodate new development on the Pike.

Public Transit

Public transit in the corridor includes Metrorail, Metrobus and Montgomery County Ride-On bus service. Although Metrorail is generally exceeding ridership projections, the majority of the ridership is oriented to downtown D.C. and downcounty employment and tourist areas. When combined with the feeder systems in the corridor, however, it could play a much greater role in the movement of local traffic along the Pike.

Metrorail

The Twinbrook Metro Station at Chapman Avenue is a 30-minute trip from Metro Center on the Red Line. Opened in December 1984, the station quickly exceeded projected ridership estimates. Current arrivals and departures now exceed 6,500 per day. Metrorail riders can reach employment centers such as the National Institutes of Health and K Street in downtown Washington in 15 and 25 minutes, respectively. The 1,000 parking spaces at the Twinbrook Station are normally filled by 9 A.M. The limited capacity of the lot appears to restrict full utilization of Metrorail.

Metrobus and Ride-On

The Twinbrook Metro Station serves as a hub for Metrobus and Ride-On operations in the corridor. Five Metrobus and three Ride-On bus routes serve the Twinbrook Metro Station. Ride-On buses are primarily routed through neighborhoods and are designed to feed into the larger transit systems. Table 1 shows the 1985 ridership patterns for both Metrobus and Ride-On bus routes serving the corridor. In general, the daily ridership of these routes is concentrated in rush hours and operates below capacity for the remainder of the day.

TABLE 1

BUS RIDERSHIP

Route		Destination	1985 Daily Ridership
Metro:			
	C2	Beltway Plaza - Twinbrook	3,028
	C7	Silver Spring - Twinbrook	415
	C8	Aspen Hill - Montgomery Mall	879
	T6	Bethesda - Montgomery College	4,333
	Z4	Twinbrook - Calverton	1,686
Ride-On:			
	5	Twinbrook - Silver Spring	2,115
	44	Twinbrook - Rockville	590
	45	Rockshire-Rockville-Twinbrook	172

Source: Montgomery County Department of Transportation, 1986

Pedestrian and Bicycle Routes

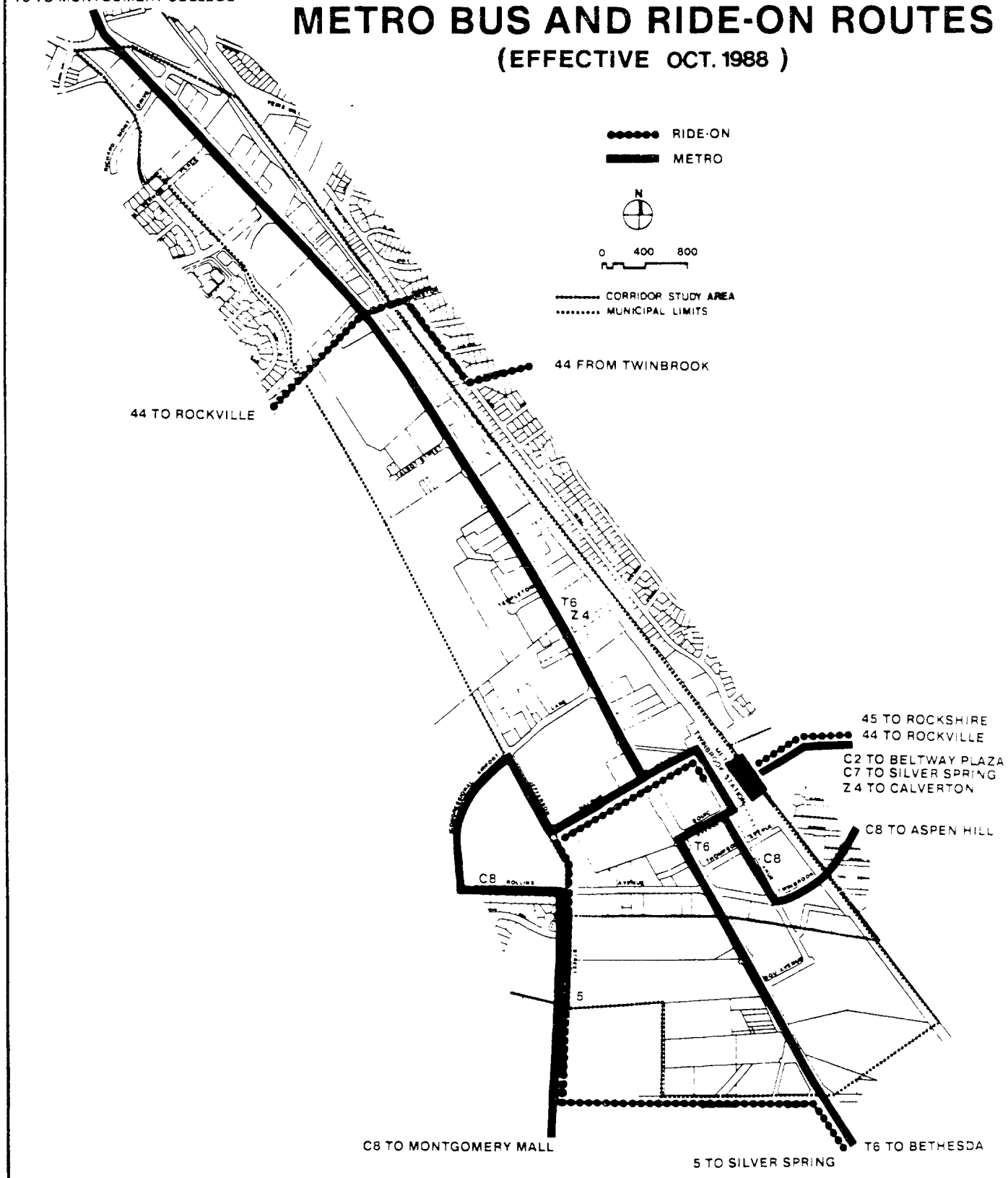
Pedestrian activity on the Pike is limited by inadequate sidewalks (shown in detail in Map 4), heavy traffic volume and turning movements. The sidewalk system is not adequately connected to the Metro or major shopping areas. The large front setbacks and acres of parking do little to encourage local pedestrian use of the Pike for multiple destination trips. As a result, most shoppers drive to many destinations that could be reached on foot.

The lack of safe and effective bikeway routes within the corridor forces cyclists to be daring and resourceful. At various points along the Pike, cyclists must alternate between the road, service drive and sidewalk. On secondary roads, cyclists tend to use the street.

MAP 3

METRO BUS AND RIDE-ON ROUTES

(EFFECTIVE OCT. 1988)



Conclusion

This discussion of existing traffic conditions on the Pike clearly indicates that the current highway network is inadequate to support further development on the Pike. These conditions suggest the following actions:

1. Further improve the highway network, including the traffic flow at major intersections, to accommodate future development.

2. Encourage the use of public transit.

3. Repair sidewalks and provide safer conditions for pedestrians and cyclists in the corridor to better connect the Metro Station and the shopping areas along the Pike.

4. Install overhead street signs at intersections to improve the orientation of drivers.

TRAFFIC CONDITIONS

Negative traffic impacts from new development will be identified and corrected through the Standard Traffic Methodology which is an evaluation tool for measuring the changes in traffic patterns and congestion caused by new development (see Appendix A). This will allow for the equitable approval of projects in the corridor without overburdening roadways. Growth in background traffic will create localized intersection congestion. Mitigation offered by developments and other incremental improvements should serve to maintain acceptable levels of service.

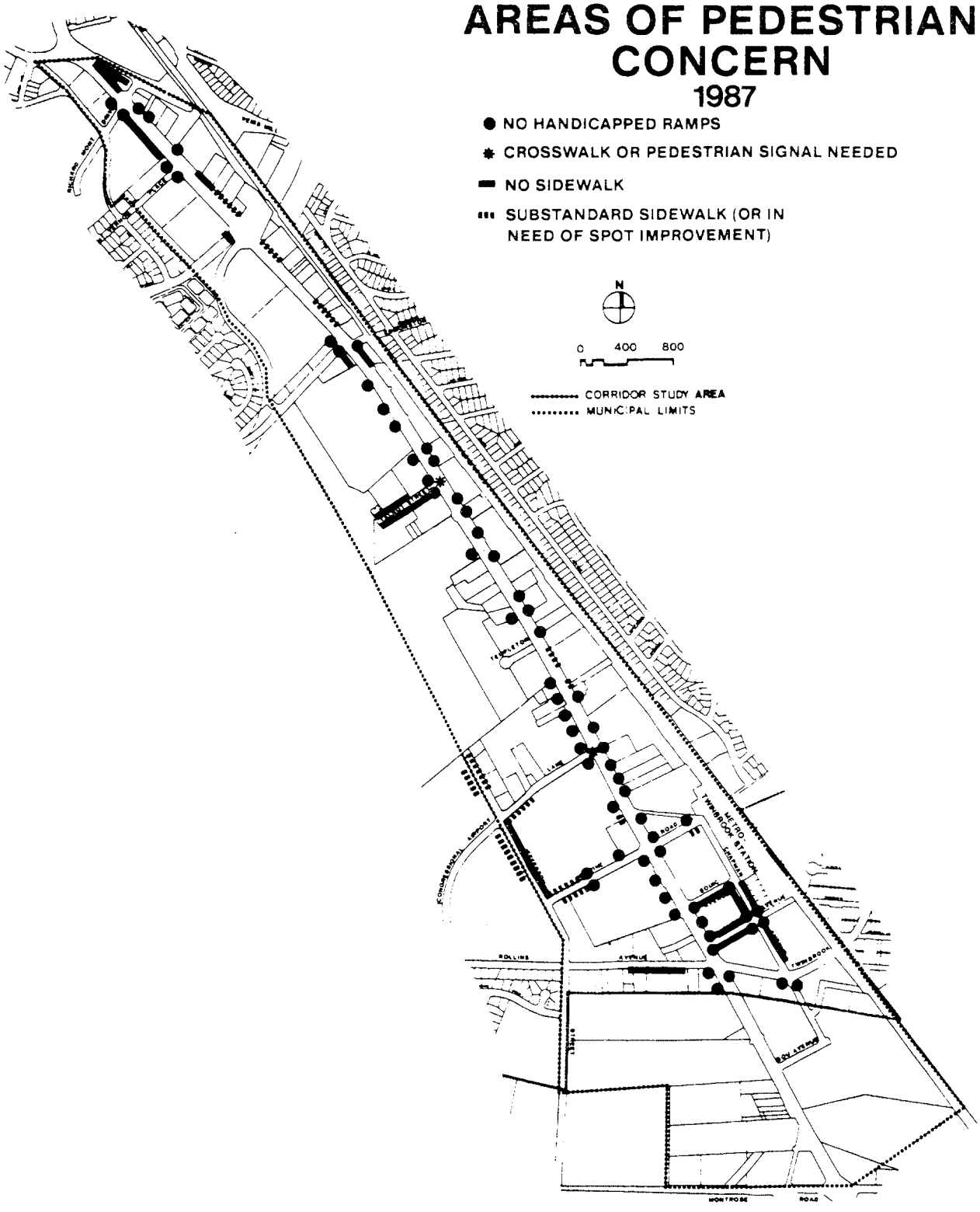
In cases where background traffic causes unacceptable levels of service, new optional method development will be allowed provided that the mitigation techniques offered by the developers result in no net increase in the volume to capacity ratio. Although the zoning capacity exceeds traffic capacity, all sites will not develop to the maximum FAR and the monitoring of individual development through the Standard Traffic Methodology will allow the city to control the level of development based on traffic capacity.

In December 1985, JHK & Associates prepared a traffic engineering report which considered a series of traffic scenarios and mitigation measures on the Pike. These tests permit one to see at what point certain portions of the system might fail. This will allow the City to properly prepare for and manage anticipated traffic conditions. It is important for the reader to understand that all intersections on the Pike are sensitive to traffic impacts from development and the location and intensity of individual developments could cause specific intersections to deteriorate.

MAP 4

AREAS OF PEDESTRIAN CONCERN

1987



Forecasted Conditions

The following section represents the effect of current and approved development on the existing road network. It should be noted that the large number of individual parcels on the Pike prohibits the establishment of an equitable allocation of development rights based on traffic capacity, staging plan or development cap.

It is acknowledged that if every parcel is developed at the permitted density under the optional method the number of trips generated will exceed roadway capacity. The total amount of development that can be accommodated is dependent upon the location and timing of individual developments. It is anticipated that site size, transportation limitations, parcel geometry, construction costs and other characteristics unique to individual parcels will limit actual development to levels below the maximum FAR. Changes in the operation of roads in the corridor and the entire city will be monitored through the Standard Traffic Methodology.

Map 5 illustrates the effect of current and approved development on the existing highway system. This map shows that without additional improvement to the highway network, scheduled development will reduce the carrying capacity of the corridor.

During the reconstruction of I-270, traffic congestion on the Pike will likely worsen. During peak hours, the current number of I-270 northbound and southbound lanes will be retained, however, probably at a reduced width. During off-peak periods, capacity on I-270 will be further reduced to two lanes northbound and southbound. The reduced capacity will temporarily divert thru-traffic to the Rockville Pike Corridor.

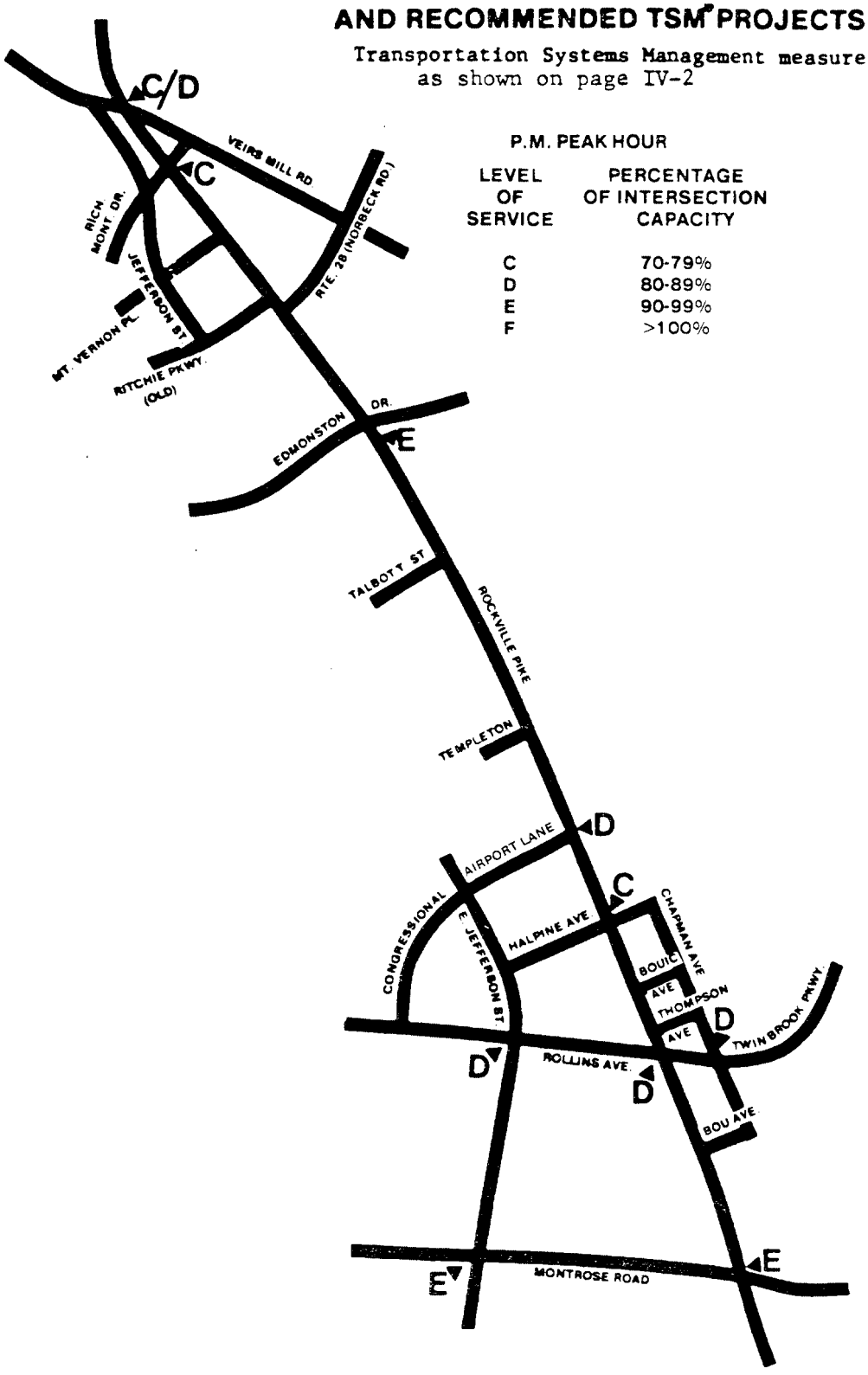
The following recommendations will help alleviate some of this congestion through highway network improvements and encouraging the use of alternate forms of transportation.

RECOMMENDATIONS

This section includes long-range recommendations to further improve the carrying capacity of the Pike. These recommendations are based on analysis of the existing conditions, forecasts and policy guidelines adopted by the Mayor and Council in 1985.

MAP 5
PM LEVEL OF SERVICE WITH CURRENT TRAFFIC AND RECOMMENDED TSM PROJECTS

Transportation Systems Management measures as shown on page IV-2



P.M. PEAK HOUR

LEVEL OF SERVICE	PERCENTAGE OF INTERSECTION CAPACITY
C	70-79%
D	80-89%
E	90-99%
F	>100%

Improvements to Highway Network

As illustrated in the section on existing conditions, many improvements are already completed or programmed to increase the capacity of the corridor. These provide short-range solutions that will marginally improve the level of service at major intersections along the Pike. Map 6 shows the programmed and long-range improvements recommended for the Pike. These improvements will offer more options to motorists, thus increasing the efficiency of the Pike Corridor. A major element of this plan is the introduction of a grid system of streets in the Congressional area to maximize local circulation and access to commercial properties while decreasing intersection congestion. The following improvements are recommended.

1. Fleet Street

   Fleet Street will be a four-lane business district road and will occupy a 70-foot right of way. This new road will run from the intersection with Richard Montgomery Drive to Ritchie Parkway and East Jefferson through the Firemen's Carnival Grounds and behind Ritchie Center on existing right of way. Fleet Street extended will provide an additional north-south roadway, access to the Firemen's Carnival Grounds and reduce thru-traffic on the residential portion of Jefferson Street. The affected property owners will be consulted during the design of the road.

2. Chapman Avenue

   The northward extension of Chapman Avenue is recommended to connect the mid-Pike area with the Twinbrook Metro Station and by-pass congested areas. It is anticipated that the construction of Chapman Avenue would be concurrent with the redevelopment of affected parcels.

   The recommended alignment is shown as a curve through the Chesapeake Plaza property as the most efficient transportation alignment. To improve property access and facilitate the redevelopment of affected sites a "T" intersection is an acceptable alternative.

3. Two One-way Streets

   The construction of two one-way streets on the east side of Rockville Pike will enhance local traffic circulation by providing convenient transfer points between Chapman Avenue and Rockville Pike. The eastbound leg will have two lanes beginning at Congressional Lane. The westbound leg will contain two lanes running from Chapman Avenue to the main entrance of Congressional Shopping Center.

MAP 6

PROPOSED ROAD IMPROVEMENTS

*A. RIGHT TURN LANE ON ROCKVILLE PIKE
*B. RIGHT TURN LANE ON RICHARD MONTGOMERY DRIVE
*C. ROCKVILLE PIKE/ROUTE 28 INTERSECTION IMPROVEMENTS
*D. RIGHT TURN LANE ON ROCKVILLE PIKE
*E. RITCHIE PARKWAY
*F. ABANDON HALPINE AVENUE
*G. CONGRESSIONAL LANE/ROCKVILLE PIKE INTERSECTION IMPROVEMENTS
1. FLEET STREET EXTENSION
2. EXTENSION OF CHAPMAN AVENUE NORTH
3. CONSTRUCTION OF 2 ONE-WAY STREETS
4. ABANDON SECTION OF THOMPSON AVENUE
5. ADD TRAFFIC SIGNALS
6. ACCESS MANAGEMENT PLAN (ENTIRE LENGTH OF STUDY AREA AND SERVICE DRIVES)
7. MONTROSE NEIGHBORHOOD TRAFFIC CONTROL PROGRAM
8. CONSTRUCTION OF GRADE SEPARATED INTERSECTION AT MONTROSE/ ROCKVILLE PIKE INTERSECTION INCLUDING B&O CROSSING ROCKVILLE SPUR (ONE-WAY ARTERIAL PAIRS)
9. EXTENSION OF CHAPMAN AVENUE SOUTH TO NEBEL STREET

*PROGRAMMED

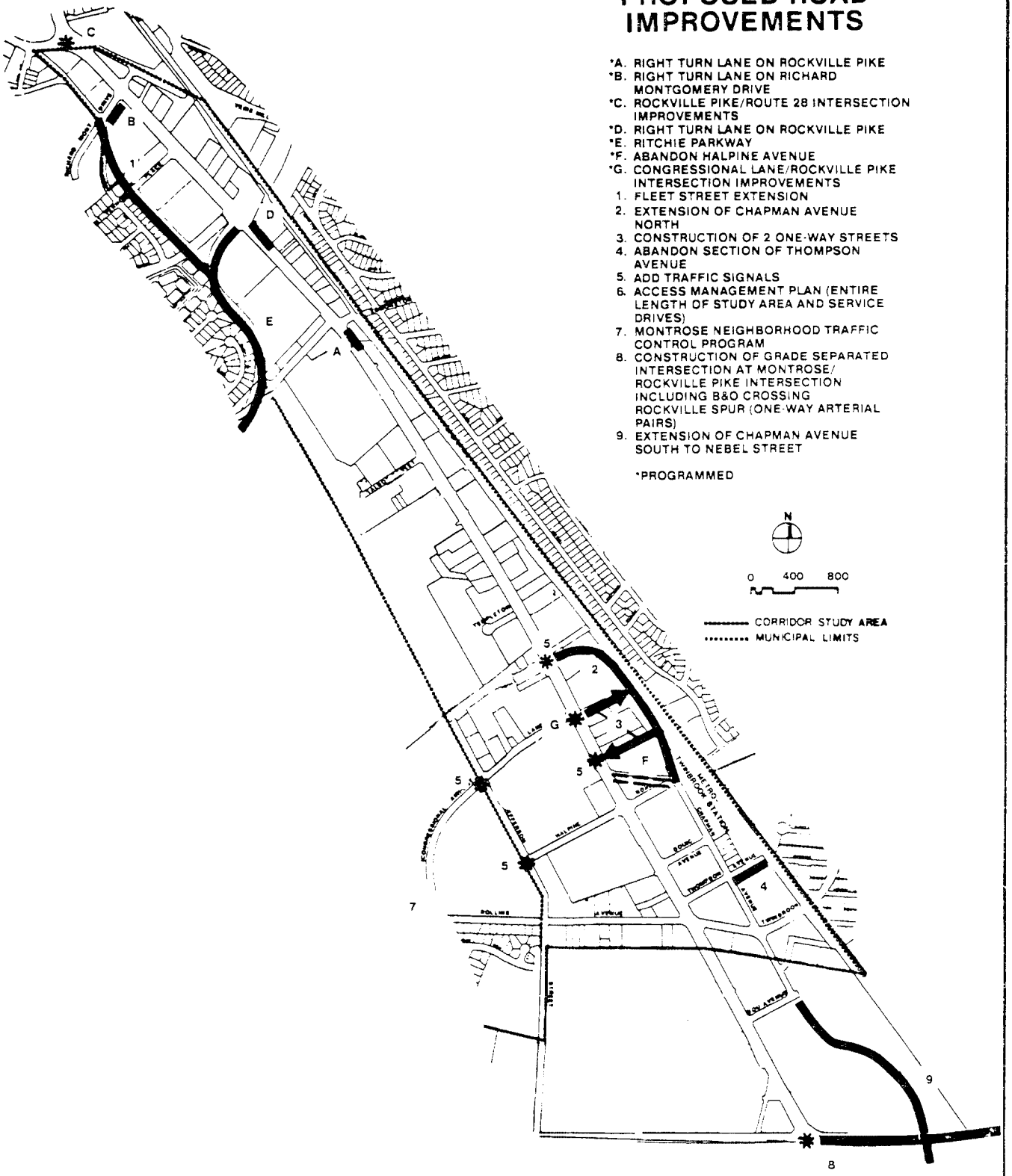


Table 2

RECOMMENDED STREET CLASSIFICATIONS

Major	Location
Rockville Pike (Rt. 355)	City limits to Rt.28
Veirs Mill Road	Entire Length

Arterial	Location
Ritchie Parkway (New)	Entire Length
Twinbrook Parkway	City limits to Rockville Pike

Business District	Location
Bouic Avenue	Rockville Pike to Chapman
Chapman Avenue	Entire Length
Congressional Airport Lane	Rockville Pike to E. Jefferson
Congressional One-way Pair	Chapman Avenue to Rockville Pike
Fleet Street (formerly part of E. Jefferson)	Maryland Avenue to W. Ritchie Pkwy
Halpine Road	Chapman Avenue to E. Jefferson
Jefferson Plaza	Rt. 28 to Fleet Street
Mount Vernon Place	Rockville Pike to E. Jefferson
Richard Montgomery Drive	Veirs Mill Road to Fleet Street
Rollins Avenue	Rockville Pike to E. Jefferson
Templeton Place	Entire Length
Thompson Avenue	Entire Length
West Edmonston Drive	Rockville Pike to Ritchie Pkwy

Residential	Location
Old Ritchie Parkway	Entire Length
East Edmonston Drive	Entire Length
Talbott Street	Entire Length

4. Thompson Avenue

Thompson Avenue runs from Rockville Pike to the WMATA right of way. The abandonment of 300 feet of Thompson Avenue east of Chapman Avenue is recommended as part of the redevelopment of the east side of Chapman Avenue. Currently, this dead end section is used only for access to loading docks and service bays.

5. Traffic Signals

The installation of new traffic signals at locations that meet signal warrants is recommended. It is anticipated that the following locations will require signalization.

a. East Jefferson Street/Halpine Road
b. Rockville Pike/one-way street (south of Congressional Lane)
c. Rockville Pike/Chapman Avenue

City and State Highway Administration traffic engineers may also identify other potential traffic signal locations as desirable and necessary.

6. Access Management Plan

The highway network may be further improved by limiting driveway access on the Pike. Following the recommendations of the Rockville Pike Comprehensive Management and Traffic Engineering Report[1], the total number of driveways along the Pike should be reduced and improved standards for driveway design developed to ease driveway ingress and egress. Selective use of directional driveways is recommended. Driveways should be kept properly spaced from intersections, as well as from each other, according to standards developed by the City. Proper signage of service drives to ensure their safe use will also be required. The Access Management Plan is contained in Appendix B.

7. Neighborhood Traffic Control

The negative impacts of commercial and thru-traffic on neighborhoods must be minimized. Landscaping, for example, should be included in roadway improvements, especially along the Fleet Street extension, to shield residential properties from increased traffic. The Montrose and Congressional neighborhoods are affected by vehicles bound for I-270 from Rockville Pike via Congressional Lane and Rollins Avenue.

---

[1] JHK Associates, December 1984.

In response to neighborhood concern, the City formed the Montrose Neighborhood Traffic Control Committee (MNTCC) for the purpose of evaluating non-local traffic issues in the neighborhood. Neighborhood traffic controls have been successful in reducing, eliminating or redirecting thru-traffic in the Town Center, Croydon Park and the West End.

The MNTCC final report indicated that although the percentage of non-local traffic on Wilmart and Evelyn is abnormally high, the total traffic volumes are within acceptable levels for Secondary Residential Streets. In light of these findings, the MNTCC recommended a two-phase program to the Montrose Civic Association. Since the Montrose Neighborhood is outside of the study area, this project is independent of this plan and will be acted upon at the request of the civic association.

Recommended Improvements Within Montgomery County

The Rockville Pike Corridor shares many of its benefits and problems with the North Bethesda Policy Area in Montgomery County. The policies of the city and county in these areas can have significant impacts on the neighboring jurisdiction. The following roadway improvements are recommended to Montgomery County for inclusion in the upcoming revision of the North Bethesda Master Plan.

8. Randolph/Montrose/Rockville Pike Interchange

The construction of a grade separated interchange at Montrose Road is under study as a part of the State Highway Administration's comprehensive study of Rockville Pike. The present at-grade intersection is operating at level of service 'E', indicating that its capacity to handle current and projected demand is severely limited. An additional feature of this proposed interchange would be to elevate Randolph Road (the continuation of Montrose Road east of the Pike) to the east of Rockville Pike and eliminate the at-grade crossing of Randolph Road at the B&O tracks by constructing a bridge. Substantial efforts should be made to preserve the historic Montrose School.

9. Chapman Avenue

Further improvements to the grid systems of Rockville and North Bethesda can be achieved through the extension of Chapman Avenue south to Randolph Road. Optimally, this street would meet Randolph Road opposite Nebel Street; but if the B&O railroad crossing is abandoned, an intersection further to the west would run beneath the relocated Randolph Road. Chapman Avenue would provide a third north-south connection between Rockville and North Bethesda. The location of the right of way may require alteration or some condemnation of improved properties.

10. Rockville Facility

The use of the Rockville Facility right of way is currently the subject of a Maryland-National Capital Park and Planning Commission Study. The City recognizes the need for additional east-west roadway capacity in the Montrose Road corridor. Although the City's Adopted Master Plan Map (1981) indicates a limited access freeway in the right of way (300' width), it would not preclude the construction of a less intense road. The City will review and comment on the results of the Rockville Facility Study in light of the existing Master Plan recommendation.

Recommended Mass Transit Component

Transit usage within the corridor should be encouraged. Metrorail, Metrobus, Ride-On and other public/private transit systems provide efficient alternatives to the automobile. Higher utilization of these alternate transportation systems can reduce the traffic congestion along the Pike and improve air quality.

Metrorail

The Twinbrook Metro Station has been successful in providing an alternative to commuters. Though the Metro system could accommodate many more riders, higher ridership of the Twinbrook Station, in particular, appears to be constrained by the limited number of parking spaces provided near the station. This system cannot be effectively utilized to reduce congestion without improved pedestrian access, increases in station and satellite parking areas, ridesharing and use of feeder bus routes.

Metrobus

The primary purpose of Metrobus service is to provide longer haul, intercommunity service connections. This plan recommends the continuance of Metrobus feeder service as a primary means of relieving the number of vehicle trips that would otherwise converge on the station seeking parking at or around the Twinbrook Station.

Ride-On Bus

Ride-On provides an inter-neighborhood link to Metrobus and Metrorail service. It is intended to serve neighborhoods via primary residential streets in relatively close proximity to Metrorail stations or to link nearby Metro stations. Further expansion of these bus systems is recommended to relieve congestion in the area.

The Rockville Pike Shuttle

To encourage the use of Metrorail and further reduce the number of vehicle trips on the Pike, the Metropolitan Washington Council of Governments has proposed a number of privately operated shuttle buses in and around the Rockville Pike Corridor and the North Bethesda area. The feasibility study by the Urban Mobility Corporation was completed in January 1989. The purpose of the shuttle is to provide localized transit service along Rockville Pike.

Transportation Action Partnership

The Transportation Action Partnership (TAP) of Rockville and North Bethesda is a private and public partnership designed to coordinate public and private transportation related policies such as carpools, vanpools, shuttles, satellite lots, transit passes, parking management and other strategies used to reduce reliance on the single-occupant automobile.

Employer Sponsored Options

Through TAP, area employers may be encouraged to provide incentives for employees to ride Metrorail, Metrobus, Ride-On and other transit or paratransit alternatives.

Subsidization of Public Transit

Metrorail, Metrobus, and Ride-On ridership can be encouraged through the following measures.

a. Free or discount transit passes provided by employers
b. Free or discounted transit passes for new residents and employees
c. Private shuttles from employment areas to Metro station

Paratransit

Private employer supported vanpools and carpools can be used to serve large developments or clusters of developments. In those projects where a vanpool or other paratransit measures are required as a condition of Use Permit approval, continued operation (10-year minimum) must be assured through the posting of a decreasing bond. Existing development can encourage carpools and vanpools through preferred parking, pool cars for errands and reduced parking rates for carpools and vanpools. Performance will be measured through submission of annual reports to the Planning Department from developments required to provide paratransit.

PEDESTRIAN/BIKEWAY SYSTEM

The evolution of the Pike as an automobile-oriented strip commercial area has resulted in an unfriendly and, at times, hostile pedestrian and cyclist environment. A series of pathways are recommended to link residential and commercial areas to each other and transportation nodes.

At-Grade Sidewalks and Bikeways

A goal of this plan is to decrease reliance on the automobile for short trips. One of the tools used to achieve this goal is an improved pathway system. The pedestrian pathway system will provide safe, convenient access to all points of activity in the Corridor. Sidewalk standards for each street are detailed in the Urban Design Chapter. In general, sidewalks along Rockville Pike will be 10 feet wide and constructed in conformance with the streetscape plan. Sidewalks in other commercial areas shall be 10 feet and residential areas shall be four feet in accordance with City standards.

Exclusive bikeways are difficult to provide in developed areas such as the Pike where frequent intersections, heavy traffic volumes and limited rights of way restrict the safe and efficient movement of bicycles.

Pedestrian Overpass

The grade separation of pedestrian facilities is encouraged in the Corridor. Pedestrian overpasses should seek to maximize the connection between retail, office and residential buildings and other pedestrian walkways. At a minimum, the walking area shall be 12 feet wide. The presence of other activities (e.g., shops and vendors) along an overpass shall be situated to maintain the minimum width.

STANDARD TRAFFIC METHODOLOGY

Development in the Rockville Pike Corridor, as in the rest of the City, will be subjected to traffic analyses to determine impact on the transportation system. The Standard Traffic Methodology focuses on the impacts of development on the existing and proposed highway network and identifies necessary improvements. Projects using the Optional Method of Development will be required to use the Standard Traffic Methodology to determine the adequacy of public facilities.

CONCLUSION

The occupancy of current and approved development will load additional vehicular trips onto the Rockville Pike Corridor. This additional traffic will cause a decline in the level of service at current congested intersections. Traffic congestion along the Pike will worsen during the I-270 reconstruction period.

With the completion of I-270 and Ritchie Parkway, a portion of the thru-traffic currently in the Corridor will be diverted from the Corridor. The result will be limited surplus capacity in the Corridor.

The transportation element seeks to ensure that, given higher levels of development, the level of service distribution will be no worse than currently found in the Corridor. Transportation system management measures such

as ridesharing programs, flexible work hours, shuttle bus and pedestrian facilities such as overpasses may be required in some optional method developments in order to maintain adequate public facilities.

It is apparent that growth in the Corridor cannot be permitted unrestrained. The Standard Traffic Methodology will become the primary means of monitoring future development and its impacts on the existing and planned highway network.

THIS PAGE IS INTENTIONALLY BLANK